

## First Virginia Records for Three Species of Centipeds (Geophilomorpha: Schendylidae)

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The recent annotated list of Virginia centipeds (Hoffman, 1995) admitted 56 species confirmed for the state as well as 19 others considered as likely to be found here. Yet, despite ongoing collecting efforts in the past six years, disappointingly little augmentation of the original total has taken place. We take this occasion to put on record three species of the family Schendylidae new to Virginia, two of them more or less anticipated, the third so far out of its known range as to be of particular biogeographic interest.

With these additions, Virginia is known to harbor no fewer than six species of schendylids, the greatest number recorded for any state, and hardly equalled by any area of comparable size in the world. Yet it is entirely probable that additional endemic species remain to be discovered here.

### SCHENDYLIDAE

The distribution of this family is curious. By far the great majority of both genera and species occur throughout the Neotropical, Indoaustralian, and Afrotropical regions, but another contingent is distinctly Holarctic and notably psychrophilous in terms of surface activity. The group itself was not established until 1896, when O. F. Cook dismembered the old Geophilidae into nine clearly-defined families. At that time, Cook knew only one endemic genus (*Escaryus*) and its two species in eastern North America, in addition to a European species introduced into New York state.

Subsequently the Nearctic fauna was shown in many papers by R. V. Chamberlin to be large and diverse, with its greatest development in southwestern United States. The fauna of northeastern United States (two genera, four

species) was treated by Crabill (1953), who later (1961) provided a catalog of the schendylids of North America, including Mexico (11 genera, 40 species, nearly all named by Chamberlin). Most recently, the present authors published a revision of the genus *Escaryus*, recognizing eight Nearctic species (Pereira & Hoffman, 1993). Since our native schendylids are normally found only during the colder months (or at high elevations in our latitude), they are not adequately represented in collections, and undoubtedly many major contributions to their knowledge remain to be made. This is shown clearly by our discovery in 1988 of two sympatric new species of *Escaryus* in the Virginia Blue Ridge, and by the three species of Schendylidae here added to the known fauna of the state.

### *Schendyla nemorensis* (C. L. Koch)

This species is common in western Europe, and like so many other small soil animals has been introduced into a hospitable North America where it is now widely dispersed and abundant in urbanized areas of the northern states. Crabill (1953) mentioned localities in Connecticut, Illinois, Massachusetts, Michigan, New Hampshire, New York, and Utah, and predicted eventual discovery in many others. We now add Virginia, apparently the southernmost established state of record:

*Roanoke Co.*: Salem, 1 February 2002, 2 ♂♂ (VMNH). A sample of soil taken beneath a white pine in his backyard by Dr. Jorge Santiago-Blay and processed by Berlese extraction at VMNH yielded these specimens. The larger is 20 mm in length, with 39 pairs of legs; both agree in every respect with the detailed description and illustrations published by Brölemann & Ribaut (1912).

The species is easily recognized by the form of the terminal legs of males (Fig. 1). Males of *Escaryus* likewise have enlarged podomeres, but they are densely setose and the terminal article is not so strongly reduced and set off. *S. nemorensis* differs also in having only four coxopleural pores instead of 12 or more, and in that the terminal claw of the second maxillae is not pectinate. Both conditions can be seen without dissection from a specimen mounted in ethylene glycol or lactic acid.

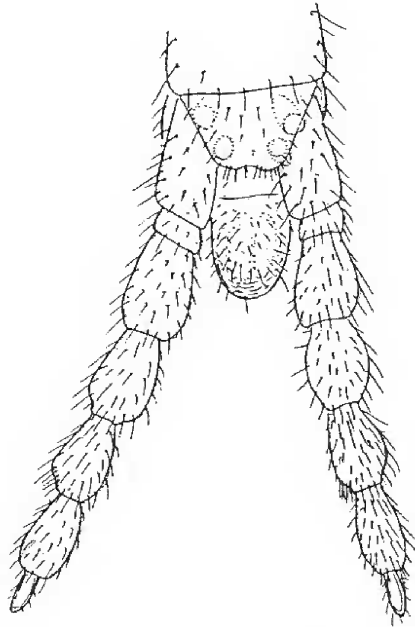


Fig. 1. *Schendyla nemorensis*, posterior end of body in ventral aspect, showing form of the last pair of legs with the reduced 7<sup>th</sup> podomere, and position of the four coxopleural pores beneath the last sternal plate, characters which distinguish this species from other local geophilomorphs. Specimen from Salem, Virginia.

#### **Escaryus liber** Cook & Collins

Originally described from New York state, this species remained largely unknown until Crabill's treatment in 1953, when he added localities for Ohio, Maryland, and the District of Columbia. The last two places almost guaranteed discovery of *E. liber* in Virginia, and this had even happened some years before the work by Pereira & Hoffman (1993) appeared. Ironically, the specimen was at VMNH but unknown to them, in a backlog of unsorted samples.

*Rockbridge-Bedford Cos.*: Blue Ridge Parkway, 0.5 mi N Petite's Gap, in pine-maple woods, 3 December 1988, W.A. Shear (VMNH 1♀ adult, 25 mm long, with 51 pairs of legs, both spermathecae contain mature

spermatozoa).

The species has not been recovered despite several attempts made at the specified site and higher on Apple Orchard Mountain. It has been described and illustrated in detail by Pereira & Hoffman (1993).

#### **Escaryus ethopus** Chamberlin

Heretofore this species has been recorded only from Alaska and Yukon Territory, Canada (Pereira & Hoffman, 1993, Map 1). Although widely disjunct distributions between the Appalachians and western North America have long been known, they have been almost invariably at the generic level. The present case involves a separation of more than 2600 mi/4160 km and displacement far to the south from the subarctic primary area (Fig. 2). Fragmentation of a once continuous North American range may be invoked as the only plausible explanation; the existence of other small disjunct populations may be reasonably assumed.



Fig. 2. Outline map of North America, showing primary range of *Escaryus ethopus* in Canada and Alaska (shaded), and location of site in the Virginia Blue Ridge (arrow).

*Rockbridge-Bedford Cos.*: Blue Ridge Parkway, 0.5 mi N Petite's Gap, in pine-maple woods, 3 December 1988, W. A. Shear (VMNH 1♀ adult, 40 mm long, with 49 pairs of legs, seminiferous tubules with mature spermatozoa).

This specimen agrees with the detailed description of *E. ethopus* (Pereira & Hoffman, 1993: 52-56) in every respect except that the pretergum of the last pedal segment is separated from the pleurites by sutures. Whether this single difference is only an aberration or reflects a constant difference in the Virginia population cannot be ascertained until more material has been examined. Regrettably, despite numerous attempts to recollect this species at the specified locality and other sites in the central Blue Ridge, no additional specimens have been obtained. As with many minute soil animals, capture is often a matter of mere serendipity, and sampling efforts may miss a population by only a few meters.

#### ***Escaryus urbicus* (Meinert)**

This species has been recorded (Pereira & Hoffman, 1993: 16) from western Virginia: Alleghany, Augusta, Bland, Giles, and Nelson counties. It is now possible to add an additional capture site: *Floyd Co.*: Buffalo Mountain Natural Area Preserve, north slope pitfall site at 3400 ft., December 2001-11 April 2002, (VMNH 1♂, ca. 34 mm long, with 41 pairs of legs). This specimen agrees closely with the detailed description and illustrations presented by Pereira & Hoffman (1993; Figs. 1-10), except that the labral teeth are much more distinct and darkly pigmented than shown in their Fig. 8, which may have been of an atypical condition. The appearance is much more like that represented for *E. cryptorobius* (Pereira & Hoffman, 1993; Fig. 55).

Although the new locality is only slightly further south than that in Bland County, it establishes the species less than 30 miles from North Carolina and the discovery of *E. urbicus* in that state is virtually assured. *Escaryus cryptorobius* has been taken syntopically at Buffalo

Mountain, although from Berlese extractions rather than pitfalls.

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